

IN THE U.S. PATENT AND TRADEMARK OFFICE

Before the Board of Appeals

Appeal No. :

Group: 2834

Examiner: DANG D. LE

2775

IMPROVED YOKE COMPARTMENT OF VOICE COIL
MOTOR FOR HARD DISK DRIVE AND VOICE COIL
MOTOR USING SAID COMPONENT

02 FC:1252

410.00 OF APPEAL BRIEF TRANSMITTAL FORM

May 23, 2003

Transmitted herewith is an Appeal Brief (in triplicate) on behalf of the Appellants in connection with the above-identified application.

☐ The enclosed document is being transmitted via the Certificate of Mailing provisions of 37 C.F.R. § 1.8.

A Notice of Appeal was filed on January 23, 2003.

☐ Applicant claims small entity status in accordance with 37 C.F.R. § 1.27

The fee has been calculated as shown below:

☒ Extension of time fee pursuant to 37 C.F.R. §§ 1.17 and 1.136(a) - \$410.00 - two (2) months (large entity).

☒ Fee for filing an Appeal Brief - \$320.00 (large entity).

☒ Check(s) in the amount of \$730.00 is(are) attached.

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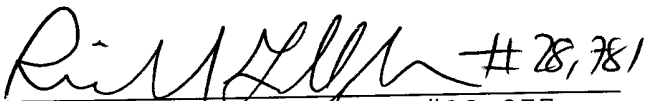
Appl. No. 09/658,014

- ☐ Please charge Deposit Account No. 02-2448 in the amount of \$0.00. A triplicate copy of this sheet is attached.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

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Attachment(s)

(Rev. 04/29/03)



PATENT
0171-0704P

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Ryo OSUGI et al.

Appl. No.: 09/658,014

Filed: September 8, 2000

Conf. No.: 2775

For:

IMPROVED YOKE COMPARTMENT OF VOICE COIL MOTOR
FOR HARD DISK DRIVE AND VOICE COIL MOTOR USING
SAID COMPONENT

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A P P E A L B R I E F



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In re application of

Ryo OSUGI et al.

Appl. No.: 09/658,014

Filed: September 8, 2000

Conf. No.: 2775

For: IMPROVED YOKE COMPARTMENT OF VOICE COIL MOTOR
FOR HARD DISK DRIVE AND VOICE COIL MOTOR USING SAID
COMPONENT

Before the Board of Appeals

Appeal No.:

Group: 2834

Examiner: Dang D. LE

05/27/2003 SDIRETA1 00000101 09658014

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320.00 OP

BRIEF ON APPEAL

MS APPEAL BRIEF - PATENTS

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

May 23, 2003

Sir:

This is an appeal from the Final Rejection, mailed July 23, 2002, finally
rejecting claims 1, 6, 10, and 11.

1. Real party in interest

The real party in interest in this appeal is Shin-Etsu Chemical Co., Ltd.,
the assignee of this application.

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2. *Related appeals and interferences*

There are no related appeals or interferences.

3. *Status of claims*

Claims 1, 6, 10, and 11 -- which are all of the claims remaining in the application -- stand rejected.

4. *Status of Amendments*

In an Advisory Action mailed February 13, 2003, the Examiner kindly indicated that the Amendment of November 21, 2002 would be entered for purposes of appeal.

5. *Summary of invention*

The present invention relates to yoke components for making up magnetic circuits of voice coil motors for hard disk drives, and to voice coil motors that incorporate such yoke components. Specification, page 1, lines 9-18. The yoke components are made from low carbon steel, on which burrs are produced upon shearing or cutting. It has been found that burrs present on ridge lines at finely machined portions of the yoke components -- for instance, through-holes, threaded holes, and recesses -- are difficult to remove only by barrel polishing, because abrasive grains do not sufficiently collide with the burrs present on these ridge lines. Specification, page 5, lines 3-14. The

present inventors have found that such burrs can be removed by procedures described in the present specification. In the broadest claimed embodiments of the present invention (claims 1 and 6), the improved yoke component has no burr of 0.1 mm or greater in thickness on any ridge line of the finely machined portions of the yoke component. See the Examples. In the preferred claimed embodiments of the present invention (claims 10 and 11), the improved yoke component has no burrs at all on any ridge line of the finely machined portions of the yoke component. See the paragraph bridging pages 19-20 of the specification, as well as the working Examples herein.

6. Issues

In the Advisory Action, the Examiner indicated that this application is not in condition for allowance because

The yoke of Shinbo et al. does not have any burr as indicated in the specification. See Abstract and column 14. In addition, it would have been obvious to one having ordinary skill in the art to combine the cited references because they are all in the same art of making stator components.

Accordingly, the only issues remaining in the application are whether claims 10 and 11 are properly rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,185,076 (Shinbo) in view of US 5,943,194 (Jones) -- Final Rejection, pages 3-5 -- and whether claims 1 and 6 are properly rejected under 35 U.S.C. 103(a) as being unpatentable over Shinbo and Jones in view of US 6,191,510 (Landin) -- Final Rejection, pages 5-6.

7. Grouping of claims

Claims 10 and 11 are patentable for all of the reasons for which claims 1 and 6 are patentable, and for an additional reason.

8. Argument

LEGAL STANDARDS FOR REJECTION

The rigorous burden placed upon an Examiner for establishing a *prima facie* case of obviousness was reviewed by the United States Court of Appeals for the Federal Circuit in *In re Lee*, 61 USPQ2d 1430, (Fed. Cir. 2002). In *Lee*, the court observes:

When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness. See, e.g., *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001) (“the central question is whether there is reason to combine [the] references,” a question of fact drawing on the *Graham* factors).

... *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) (“Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.”); *In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998) (there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant); *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) (“teachings of references can be combined only if there is some suggestion or incentive to do so.”) (emphasis in original) (quoting *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984)).

The need for specificity pervades this authority. See, e.g., *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) (“particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed”); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) (“even when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination. In other words, the Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious.”); *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (the examiner can satisfy the burden of showing obviousness of the combination “only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references”).

For reasons discussed in detail hereinbelow, it is respectfully urged that the Examiner has not met that burden with respect to the rejections of record. Accordingly, it is respectfully requested that the rejection of the claims herein over Shinbo and Jones (and Landin) be withdrawn, and that this application be passed to Issue.

CLAIMS 10 AND 11

Claims 10 and 11 were rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,185,076 (Shinbo) in view of US 5,943,194 (Jones).

Shinbo discloses the removal of burrs in a carriage for a magnetic head. This is an arm for retaining the magnetic head, and is present in the vicinity of the surface of a magnetic recording media. The carriage is composed of an aluminum alloy, and is non-magnetic.

The Examiner alleges that Shinbo shows a component that "has no burr on any ridge line of a finely machined portion thereof", citing Shinbo Figures 16-18D. Shinbo does not show any ridge line of a finely machined portion. In fact, Figures 16, 17A, and 18A-18D show only burrs on the *external* ridge edges of large blocks. This is confirmed by the underlying disclosure, which teaches as follows:

FIGS. 16 and 17 illustrate rough removal work of the bur [sic] by the metal brush. As seen in FIG. 16, the metal brush is rotating, then the carriage is approached and pressed, and the surface burs [sic] are removed. ... the burs [sic] not removed are left on the edges as shown in FIG 17A

Column 13, lines 28 ff.

In any case, Shinbo is not directly relevant to the present invention. Referring to Figure 1 herein, the carriage of Shinbo is a portion connected to the coil "c". The yoke is present comparatively far from the magnetic recording surface, and therefore does not come into direct contact with the magnetic recording surface. The yoke should be composed of a magnetic material, since it composes a magnetic circuit. By constituting the yoke with a low carbon steel, the magnetic property is improved. However, in yokes made of low carbon steels, burrs occur readily, since low carbon steel has a high toughness. Such burrs should be removed.

Jones uses a low carbon steel for making a voice coil motor yoke used for a disk drive. Jones relates only to a removable drive such as a ZIP drive in which a magnetic recording surface is accommodated in a cartridge. Such

cartridge-type drives have no problems with burrs on the yoke. Jones fails to disclose a hard disk drive.

The Examiner has failed to establish a *prima facie* case of obviousness with respect to the presently claimed **yoke component** that “has no burr on any **ridge line of a finely machined portion** thereof”. As indicated above, Shinbo fails to disclose a yoke. The Shinbo carriage is not even made of a magnetic material. Therefore, the Shinbo disclosure is irrelevant to a magnetic circuit of a voice coil motor. On the other hand, the Jones disclosure does not relate to hard disk drives. Accordingly, there is no motivation to combine Jones with Shinbo.

CLAIMS 1 AND 6

Claims 1 and 6 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shinbo and Jones in view of US 6,191,510 (Landin).

Shinbo discloses the removal of burrs in a carriage for a magnetic head. This is an arm for retaining the magnetic head, and is present in the vicinity of the surface of a magnetic recording media. The carriage is composed of an aluminum alloy, and is non-magnetic.

In any case, Shinbo is not directly relevant to the present invention. Referring to Figure 1 herein, the carriage of Shinbo is a portion connected to the coil “c”. The yoke is present comparatively far from the magnetic recording surface, and therefore does not come into direct contact with the

magnetic recording surface. The yoke should be composed of a magnetic material, since it composes a magnetic circuit. By constituting the yoke with a low carbon steel, the magnetic property is improved. However, in yokes made of low carbon steels, burrs occur readily, since low carbon steel has a high toughness. Such burrs should be removed.

Jones uses a low carbon steel for making a voice coil motor yoke used for a disk drive. Jones relates only to a removable drive such as a ZIP drive in which a magnetic recording surface is accommodated in a cartridge. Such cartridge-type drives have no problems with burrs on the yoke. Jones fails to disclose a hard disk drive.

The Examiner acknowledges that the Shinbo reference fails to "show the yoke component comprising a low carbon steel and wherein there is no burr of 0.1 mm or greater in thickness on any ridgeline of said finely machined portion of said yoke component". Office Action, page 5.

As indicated above, Shinbo fails to disclose a yoke. The Shinbo carriage is not even made of a magnetic material. Therefore, the Shinbo disclosure is irrelevant to a magnetic circuit of a voice coil motor. On the other hand, the Jones disclosure does not relate to hard disk drives. Accordingly, there is no motivation to combine Jones with Shinbo.

The Examiner relies on the Landin as alleging teaching the absences of burrs as small as 0.1 mm. However, Landin is not concerned with voice coil motor yoke components. Instead, Landin refers to cores made from

combinations of laminate sections. The reference teaches that a burr should not extend very far past the edge of the laminate section (column 17, lines 63-68). The Landin reference however teaches nothing with respect to burrs on ridge lines of *finely machined portions* of voice coil motor yoke components.

Accordingly, the rejection based upon Shinbo, Jones, and Landin is not believed to be sustainable with respect to claims 1 and 6 herein. The Examiner has failed to establish a *prima facie* case of obviousness with respect to the presently claimed "improvement comprising the absence of any burr of 0.1 mm or greater in thickness on any **ridge line of said finely machined portion** of said yoke component".

Conclusion

For reasons discussed in detail hereinabove, it is respectfully urged that the Examiner has not met his burden of proof with respect to the rejections of record. Accordingly, it is respectfully requested that the rejection of the claims herein over Shinbo and Jones (and Landin) be withdrawn, and that this application be passed to Issue.

Should the Examiner or the Board of Appeals have any questions concerning this application, please contact Richard Gallagher, Reg. No. 28,781, at (703) 205-8008.

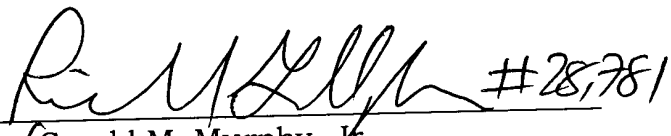
The required Appeal Brief fee in the amount of \$320.00 is attached hereto.

Pursuant to the provisions of 37 C.F.R. §§ 1.17 and 1.136(a), the Appellants hereby petition for an extension of two (2) months to May 23, 2003, in which to file an Appeal Brief. The required fee of \$410.00 is enclosed herewith.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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Enclosure: Appendix

9. Appendix

1. In a yoke component comprising a low carbon steel configured as a magnetic circuit of a voice coil motor for a hard disk drive, wherein said yoke component has a finely machined portion comprising a ridge line, the improvement comprising the absence of any burr of 0.1 mm or greater in thickness on any ridge line of said finely machined portion of said yoke component.

6. A voice coil motor for a hard disk drive, comprising: a yoke component, made from a low carbon steel, configured as a magnetic circuit of said voice coil motor, wherein said yoke component has on any ridge line of a finely machined portion thereof no burr of 0.1 mm or greater in thickness.

10. A yoke component comprising a low carbon steel configured as a magnetic circuit of a voice coil motor for a hard disk drive, wherein said yoke component has no burr on any ridge line of a finely machined portion thereof.

11. A voice coil motor for a hard disk drive, comprising: a yoke component, made from a low carbon steel, configured as a magnetic circuit

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of said voice coil motor, wherein said yoke component has no burr on any ridge line of a finely machined portion thereof.